
A chemical approach to stem cell biology.

Journal: Curr Opin Chem Biol

Publication Year: 2007

Authors: Nil Emre, Ronald Coleman, Sheng Ding

PubMed link: 17493865

Funding Grants: Training Grant I

Public Summary:

Small molecule libraries have been used successfully to probe several biological systems. Recent work has translated these successes across to the field of stem cell biology. Stem cells hold promise for both modeling of early development as well as having therapeutic potential. Enhanced understanding of the molecular mechanisms that control stem cell fates as well as an improved ability to manipulate cell populations are required. Known mechanistic chemical compounds have been used with stem cells to accomplish these two goals. More recently, through the utilization of high fitness libraries in phenotype-based screens, several small molecules that control self-renewal and differentiation in stem cells have been identified. These small molecules provide useful chemical tools for both basic research and practical applications.

Scientific Abstract:

Small molecule libraries have been used successfully to probe several biological systems. Recent work has translated these successes across to the field of stem cell biology. Stem cells hold promise for both modeling of early development as well as having therapeutic potential. Enhanced understanding of the molecular mechanisms that control stem cell fates as well as an improved ability to manipulate cell populations are required. Known mechanistic chemical compounds have been used with stem cells to accomplish these two goals. More recently, through the utilization of high fitness libraries in phenotype-based screens, several small molecules that control self-renewal and differentiation in stem cells have been identified. These small molecules provide useful chemical tools for both basic research and practical applications.

Source URL: <https://www.cirm.ca.gov/about-cirm/publications/chemical-approach-stem-cell-biology>